

AMENDMENTS TO THE CLAIMS

The following is a complete listing of revised claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Original) A digital measuring head in a measuring apparatus which measures a work by making a contact element abut to the work, the digital measuring head comprising:

an arm supported rotatably around a support point arranged on a base;

a finger having the contact element at a tip end and mounted to a tip end portion of the arm; and

a scale and a read head, one of which is provided at a rear end portion of the arm and the other of which is arranged on the base, wherein

displacement of the contact element which contacts with the work is measured with the scale and the read head.

2. (New) The digital measuring head of claim 1, wherein the displacement is measured based on at least one of refraction and reflection of light.

3. (New) The digital measuring head of claim 1, wherein the readhead further includes,

an emitter adapted to emit light, and

a receiver adapted to receive at least one of reflected and refracted light.

4. (New) The digital measuring head of claim 3, wherein the scale is adapted to reflect or refract light emitted by the readhead.

5. (New) The digital measuring head of claim 1, further comprising a pressurizing member, and a damper, wherein the pressurizing member is adapted to keep the contact element in continuous contact with the work and the damper is adapted to reduce unwanted oscillations of the arm.

6. (New) A digital measuring apparatus comprising:
a control unit;
an analog to digital converter;
an arm rotatably supported around a support point arranged on a base;
a finger, including a contact element mounted to an end portion of the arm; and
a scale and a read head, at least one of which is provided at a rear end portion of the arm and the other of which is arranged on the base; wherein displacement of the contact element which contacts with a work is measured with the scale and the read head.

7. (New) The digital measuring apparatus of claim 6, wherein the displacement is measured based on at least one of refraction and reflection of light.

8. (New) The digital measuring apparatus of claim 6, wherein the readhead further includes,

an emitter adapted to emit light, and
a receiver adapted to receive at least one of reflected and
refracted light.

9. (New) The digital measuring head of claim 7, wherein the scale is adapted to reflect or refract light emitted by the readhead.

10. (New) The digital measuring head of claim 6, further comprising a pressurizing member, and
a damper, wherein
the pressurizing member is adapted to keep the contact element in continuous contact with the work and the damper is adapted to damp the jump of the contact element.

11. (New) The digital measuring head of claim 9, wherein the damper is a dash pot type damper,

12. (New) A digital measuring head comprising:

at least one arm rotatably supported around at least one support point arranged on a base;

at least one finger including at least one contact element mounted to an end portion of the at least one arm; and

at least one scale and at least one read head adapted to measure at least one displacement of the at least one contact element based on at least one of refraction and reflection of light.

13. (New) The digital measuring head of claim 12, wherein

the at least one arm further comprises a first arm and a second arm rotatably supported on a first support point and a second support point, respectively, and

the at least one finger further comprises a first finger, including a first contact element, arranged at the end portion of the first arm and a second finger, including a second contact element, arranged at the end portion of the second arm.

14. (New) The digital measuring head of claim 12, wherein the at least one scale and the at least one read head further comprises,

a first scale and a first read head adapted to measure a first displacement, and

a second scale and a second read head adapted to measure a second displacement.

15. (New) The digital measuring head of claim 12, wherein the at least one displacement is measured based on at least one of refraction and reflection of light.

16. (New) The digital measuring head of claim 12, wherein the at least one readhead further includes,

at least one emitter adapted to emit light, and

at least one receiver adapted to receive at least one of reflected and refracted light.

17. (New) The digital measuring head of claim 12, wherein the at least one scale is adapted to reflect or refract light emitted by the readhead.

18. (New) The digital measuring head of claim 12, further including, at least one pressurizing member and at least one damper.

19. (New) A digital measuring device comprising:

a read head adapted to generate signals and receive reflected signals;
and
a scale adapted to reflect generated signals; wherein
one of the scale and the read head is stationary and the other is movable.

20. (New) The digital measuring device of claim 12, wherein the signals
are light signals.